

basis, the frequency of 449 MHz to accommodate the operations of wind profiler radars.⁴ NAB had been actively involved in the studies of CCIR Task Group 8/2, that was formed to investigate suitable frequency bands for wind profiler radars. In those deliberations NAB urged that wind profiler radars not be allocated to frequencies co-channel or adjacent channel to primary broadcast and auxiliary broadcast frequencies. NAB detailed its concerns in this matter in a memorandum, dated October 26, 1992, sent to the chairman of CCIR Task Group 8/2. A copy of that memorandum is attached.

NAB welcomes the Commission's proposal to allocate wind profiler radars at 449 MHz, particularly in light of the fact that this spectrum will provide far less potential interference to broadcast services than had earlier CCIR Task Group proposals to employ frequencies to be selected from the 40.02-75.2 MHz and/or 235-608 MHz bands. However, we believe that siting precautions must be taken to avoid interference from profiler radars to Remote Pickup Broadcast Station (RPU) operations in the adjacent 450 MHz frequency band.

II. WHILE NAB RECOGNIZES THE BENEFITS OF WIND PROFILER RADARS, SITING PRECAUTIONS MUST ATTACH TO THEIR USE.

NAB recognizes that wind profiler radars can provide valuable real-time information on wind speed and direction at

⁴The frequency of 449 MHz is actually the center frequency of the proposed 448-450 MHz allocation for wind profiler radars operating with no more than a 2 MHz bandwidth.

various levels of the atmosphere. This information, when fed into various meteorological computer models, has the potential to enhance the safety of air travellers and improve the science of weather forecasting.

Wind profiler radars typically in use by the National Oceanic and Atmospheric Administration ("NOAA") operate with peak transmit power levels in the 10 kW range. These NOAA profiler radars emit one vertical and two near vertical RF beams. Peak ERP level in the main profiler beams are well into the megawatt range. However, since profiler radars are designed to only look at vertical sections of the atmosphere, sidelobe RF energy levels are typically suppressed to a few tens of watts in order to avoid interference to land based radio services.

Antenna systems for wind profilers generally take the form of collinear arrays. NAB urges the Commission to require that any antenna system used for profiler radar operation attenuate horizontal sidelobe RF energy levels sufficiently to provide interference protection to other spectrum users.

Some of the methods which may be used to provide horizontal sidelobe attenuation include proper antenna design, the use of metallic fencing to surround the antenna structure, the use of earthen berms around antenna systems, and the siting of profiler radars in natural or man-made valley areas. We urge the Commission to require, in its rules, that wind profiler radar licensees employ all methods practicable to ensure

non-interference to RPU operations or to any other communications services.⁵

**III. THE IMPACT OF WIND PROFILER RADARS TO BROADCAST RPU
OPERATIONS MUST BE CONSIDERED.**

The Notice cited a potential problem for broadcast RPU operations that may be undertaken in the vicinity of active wind profiler radar systems. The Commission states that profiler radars likely will be located primarily in rural areas in order

to avoid interference from other radio services. Since most RPU

IV. THE COMMISSION SHOULD CAREFULLY EVALUATE PROPOSALS FOR WIND PROFILER RADARS IN THE 900 MHz BAND.

The Notice observes that Radian, a manufacturer of wind profiler radar systems, has proposed to the Commission that it allocate frequencies in the 900 MHz band for wind profiler radars.⁷ However, and also as noted by the Commission, Radian currently seeks not the originally-requested 2 MHz of spectrum but 12.5 MHz of spectrum.⁸ While no broadcast operations would be affected by the Radian proposal, we urge the Commission to evaluate carefully the emission bandwidth, operating power levels and antenna specifications for any proposed profiler radar systems.

V. CONCLUSION.

For the above-mentioned reasons, NAB supports the Commission's proposal to adopt a co-primary spectrum allocation for wind profiler radars centered on 449 MHz. However, the Commission should require that prospective licensees of wind profiler systems submit, for review by the Commission, technical and other measures that have been taken to attenuate horizontal antenna sidelobe RF energy levels to the maximum extent possible for the purpose of mitigating harmful interference to adjacent frequency broadcast RPU operations in the 450 MHz band. Additionally, we urge the Commission to monitor the siting of

⁷Notice, supra note 1, ¶¶ 14-16.


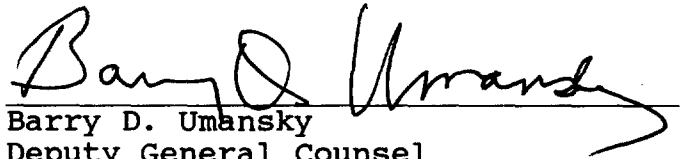
⁸Id. at ¶ 19.

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profiler radars to assure that they will only be located in rural, low population density, areas.

Respectfully submitted,

NATIONAL ASSOCIATION OF BROADCASTERS
1771 N Street, NW
Washington, DC 20036


Henry L. Baumann
Executive Vice President and
General Counsel
Barry D. Umansky
Deputy General Counsel

John Marino
Manager, Technical Regulatory Affairs
NAB Science & Technology

June 15, 1993

MEMORANDUM

For : Mr. Paul Rinaldo, Chairman
CCIR Task Group 8/2

From : John Marino -- Manager, Technical Regulatory Affairs
National Association of Broadcasters
Washington, DC

Date : October 26, 1992

Subject : Selection of Certain Frequency Bands for Wind Profiler Radars

The National Association of Broadcasters ("NAB") would like to go on record within the minutes of CCIR Task Group 8/2 as being opposed to the sharing with wind profiler radars of certain frequencies used for television broadcasting in the United States.

It is our understanding of the technical operation of wind profiler radar systems that they rely upon extremely weak echoes reflected from clear air disturbances. Therefore, we suspect that wind profilers, in order to operate most efficiently, must be located in areas where broadcast and other RF signals are of very low levels, e.g. rural areas, where cable penetration is low.

We further understand that wind profiler antenna low elevation peak sidelobe attenuation is on the order of -20 dB to -40 dB relative to the main antenna beam and that antenna pattern minima can be steered toward interfering sources to reduce the effects of interference on the wind profiler operation.

Two of the frequency bands suggested for study by the Task Group for wind profiler radar operation include United States television broadcast channels. Specifically, the Task Group is considering the frequency band of 40.02 - 75.2 MHz, which includes U.S. television channels 2 (54-60 MHz), 3 (60-66 MHz) and 4 (66-72 MHz). Furthermore, the frequency band of 235 - 608 MHz is also being considered by the Task Group. This band includes U.S. television channels 14 through 36 (470-608 MHz).

While it may be technically possible for wind profiler radars to generate useful meteorological data while operating on a shared frequency basis on television channels in

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October 26, 1992
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rural areas, the interference received by television viewers in those rural areas from the wind profiler system could be severe. Typical television viewers in rural areas use high gain antennas (> 10 dB gain) with signal preamplifiers (> 10 dB gain).

The Federal Communications Commission in 47 CFR Section 73.685 defines television "city-grade" service signal contours as: 5 mV/m (74 dBu) for channels 2 through 6 and 10 mV/m (80 dBu) for channels 14 through 69. Rural service can be considered to be anything less than 0.22 mV/m for channels 2 through 6 and less than 1.6 mV/m for channels 14 through 69.

Since the objective of Task Group 8/2 is to study the ability of wind profiler systems to co-exist with other services in various frequency bands, NAB feels that the potential for interference to rural television viewers by wind profiler radars should suggest to this Task Group that frequencies used by television broadcasting in the United States are inappropriate to be considered for study and possible recommendation to CCIR as international wind profiler allocations.

* * *

cc: Warren Richards, DOS
John Reiser, FCC/MMB
Robert McIntyre, FCC/PRB
William Luther, FCC/FOB
Richard Barth, NOAA
Donald Acheson, NOAA
Gary Patrick, NTIA